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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,155	11/25/2003	Theodore R. Sana	10030511-1	8586

7590 10/03/2007  
AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER
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KIM, YOUNG J

ART UNIT	PAPER NUMBER
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1637

MAIL DATE	DELIVERY MODE
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10/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/722,155

Applicant(s)

SANA ET AL.

Examiner

Young J. Kim

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 33-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 33-38 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 9, 2007 has been entered.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: claim 1 recites the term, "bipolymer subunit." It appears that the term, "bipolymer" should be, "biopolymer."

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The rejection of claims 1-7 and 9 under 35 U.S.C. 102(e) as being anticipated by Cronin et al. (U.S. Patent No. 6,027,880, issued February 22, 2000, filed October 10, 1995, priority October 26, 1993), made in the Office Action mailed on March 7, 2007 is withdrawn in view of a careful reconsideration of the rejection.

### ***Claim Rejections - 35 USC § 103***

The rejection of claim 8 under 35 U.S.C. 103(a) as being unpatentable over Cronin et al. (U.S. Patent No. 6,027,880, issued February 22, 2000, filed October 10, 1995, priority October 26, 1993) in view of Baldeschwieler et al. (WO 95/25116, published September 21, 1995), made in the

Art Unit: 1637

Office Action mailed on March 7, 2007 is withdrawn in view of a careful reconsideration of the rejection.

The rejection of claims 1-9 under 35 U.S.C. 103(a) as being unpatentable over Hanks et al. (Methods in Enzymology, 1991, vol. 200, pages 525-532) in view of Baldeswieler et al. (WO 95/25116, published September 21, 1995), made in the Office Action mailed on March 7, 2007 is withdrawn in view of a careful reconsideration of the rejection.

### ***Rejections, New Grounds***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cantor et al. (WO 99/22025, published May 6, 1999) in view of Baldeschwieler et al. (WO 95/25116, published September 21, 1995).

Cantor et al. disclose an array comprising degenerate oligonucleotides, wherein said array comprises 1.64 million different degenerate 16-mers (page 6, lines 17-19), comprising at least one degenerate nucleotides (see Figures 1, 3, and 4).

With regard to claims 2, 5, 7, and 34-36, the probes are oligonucleotides which consists of more than one nucleotides (thus, a polynucleotide)

Cantor et al. do not explicitly disclose a method of making their degenerate array.

Art Unit: 1637

Cantor et al. do not explicitly disclose that the method of synthesizing the array involve a dispenser comprising at least one droplet dispensing device.

Baldeschwieler et al. disclose a method of synthesizing an array via use of an inkjet technology, wherein the method involves the attachment of molecules onto a substrate surface (page 1, lines 23-25), for sequential synthesis of polynucleotides (page 2, lines 1-3), wherein the reagents are dispensed from a microdrop dispensing device (page 3, lines 14-15).

The artisans teach the deprotection step (i.e., activation of the protected monomers) so as to “grow” the nucleotides thereto (page 4, lines 1-20).

Baldeschwieler et al. disclose that in an embodiment, a five jet system is used, each jet for dispensing one of the four nucleotide bases, and one jet for activating tetrazole solution (page 13, lines 7-10).

Baldeschwieler et al. disclose the use of computer in controlling the deposition process (page 19, lines 3-9).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Cantor et al. with the teachings of Baldeschwieler et al., thereby arriving at the claimed invention for the following reasons.

Cantor et al. already discloses a microarray comprising a plurality of degenerate oligonucleotides, said degenerate oligonucleotides comprising at least one degenerate nucleotides. While the artisans are not explicit in disclosing a particular method of fabricating such an array, one of ordinary skill in the art would have clearly recognized various methods for fabricating a microarray at the time the invention was made, including the method disclosed by Baldeschwieler et al.

Art Unit: 1637

Baldeschwieler et al. explicitly disclose a method of fabricating an array via use of an inkjet technology, wherein the method involves the attachment of molecules (biopolymer subunit precursors) onto a substrate surface (page 1, lines 23-25), for sequential synthesis (by multiple round of subunit additions) of polynucleotides (page 2, lines 1-3), wherein the reagents are dispensed from a microdrop dispensing device (page 3, lines 14-15).

While Baldeschwieler et al. are not explicit in stating that a mixture of different biopolymer subunit precursors be provided during at least one round of multiple rounds of subunit additions, one of ordinary skill in the art would have clearly recognized that when "growing" a degenerate polynucleotide probe on an array's surface, said one of ordinary skill in the art need not have limited him/herself to rounds of monomer additions, but also series of dimer additions.

Since a degenerate oligonucleotide probe disclosed by Cantor et al. comprised a mixture of nucleotide sequences, deposition of dimers in fabricating the array of Canter et al. by the method disclosed by Baldeschwieler et al. would have been resulted in the invention as claimed, rendering the invention as claimed *prima facie* obvious over the cited references.

### ***Conclusion***

No claims are allowed.

Applicant's arguments with respect to the previous rejections of record have been considered but are moot in view of the new ground(s) of rejection.

### ***Inquiries***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner is on flex-time schedule and can best be reached from 8:30 a.m. to 4:30 p.m (M-W and F). The Examiner can also be reached via e-mail to Young.Kim@uspto.gov. However, the office cannot

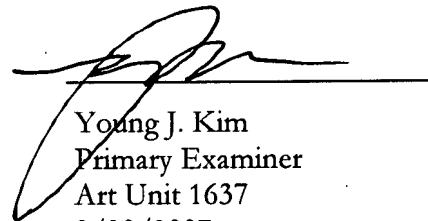
Art Unit: 1637

guarantee security through the e-mail system nor should official papers be transmitted through this route.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Gary Benzion, can be reached at (571) 272-0782.

Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office. All official documents must be sent to the Official Tech Center Fax number: (571) 273-8300. For Unofficial documents, faxes can be sent directly to the Examiner at (571) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Young J. Kim  
Primary Examiner  
Art Unit 1637  
9/30/2007

**YOUNG J. KIM  
PRIMARY EXAMINER**

YJK